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09/699,582	10/30/2000	Yishai Kagan	10506/5	8425

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Pillsbury Winthrop LLP
Intellectual Property Group
PO Box 10500
McLean, VA 22102

EXAMINER
DUONG, FRANK

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/699,582	Applicant(s) KAGAN ET AL.	
	Examiner Frank Duong	Art Unit 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 37-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 37-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a)☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This Office Action is a response to the amendment dated 09/16/2003. Claims 1-4 and 37-45 are pending in the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There original specification disclosed several embodiments of the invention. However, there is no evidence of support for the claimed limitation of "*active nodes transmitting organized invitation data packets on defined sectors, frequencies and timing, based on their relative location and possible connectivity to the joining node deduced from sub-sectors already used for existing internal network communication, thus reducing frequency interference and reducing time required for the joining process*".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-4 and 37-45 are rejected under 35 U.S.C. 102(a) as being anticipated by Berger et al (WO 00/25,485) (hereinafter "Berger").

Regarding **claim 1**, in accordance with the Berger reference entirety, Berger discloses a join process for a wireless mesh topology network where network nodes have multiple spatial coverage sub-sectors together covering a larger sector angle, where a node can establish connection with other nodes located in directions covered by its sub-sectors (*see Figs 3-4 and page 16, line 9 to page 17, line 26 for the claimed environment of the preamble of the claim*), the join process (*Fig. 8*) for adding a joining node (*any node of Fig. 4 or 6*) to the network (*Fig. 4 or 6*) comprising:

the joining node (*unaffiliated node*) starts listening to its sub-sectors at specific receiving frequencies for a defined time and thereafter changes its sub-sectors and its receiving frequencies according to a defined timing and sequence (*see Fig. 8 and page 12, lines 31-35 and page 27, lines 30 to page 28, line 2, Berger discloses the [unaffiliated] radio node listens for an invitation signal in a spatial azimuth at a given frequency for a sufficient length of time. Having not received an invitation signal, it has to scans to the next frequency and azimuth. Also see page 18, lines 7-16 for the explanation of scheduled transmission and directional transmission*); and

active networks nodes (*neighbor nodes*) transmit organized invitation (*admission invitation*) data packets on defined sectors (*spatial azimuth*), frequencies and timing, based on their relative location and relative angle orientation deduced from sub-sectors already used for existing internal network communication (*see page 18, lines 7-12*), thus reducing frequency interference (*page 21, lines 12-13*) and reducing time required for the join process (*note: On page 27, last paragraph continues to page 28, first paragraph, Berger discloses radio node listens for an invitation signal in a spatial azimuth at a given frequency for a sufficient length of time. Having not received an invitation signal, it has to scan to the next frequency and azimuth. From the passage, it is concluded the neighbor nodes transmit invitation signals on defined sectors, frequencies and timing based on their relative location and relative angle orientation deduced from sub-sectors. As stated on page 26, last paragraph, the sole purpose of the distributed admission protocol is to enable radio nodes to join the network and become an efficient participant as well as increasing network throughput with reduction of mutual interference (see page 10, lines 20-21)*).

Regarding **claim 2**, in addition to features recited in base claim 1 (see rationales discussed above), Berger also discloses one active network node distributed the schedule for the organized invitation data packets to other active network nodes (*see page 27, second paragraph, Berger discloses once radio node receive invitation signal, it will begin exchanging status information with its first neighbor and through it, learn about the schedules of the immediate neighborhood and thus begin to exchange status information with additional neighbor*).

Regarding **claim 3**, in addition to features recited in base claim 1 (see rationales discussed above), Berger also discloses an external network node (NMS) which distributes the schedule for the organized invitation data packets to the network nodes (*see page 10, second paragraph, Berger, in reference to Fig. 2, discloses radio node 16 may communicate with node 17-20 and acts as a repeater for an information transmitted from WAN access BAP-1 to nodes 17-19. Moreover, on page 13, first paragraph, Berger further discloses an optimized spectrum allocation could be downloaded from the NMS (Network Management System) based on network data flow information observed and studied by an external system*).

Regarding **claim 4**, in addition to features recited in base claim 1 (see rationales discussed above), Berger also discloses communicating using only a single sector which covers a single spatial sector from one active network node having a single spatial coverage sub-sector (*see page 9, last paragraph continues to page 10, first paragraph, Berger discloses radio nodes can create directional communication with certain nodes simultaneously as other nodes in the surrounding vicinity communicate with other nodes using the beam steering capability via selection of sectorial antenna, or by using a phased array antenna, which could be on-dimensional antenna only for terrestrial use or a two dimensional for terrestrial*).

Regarding **claim 37**, in accordance with the Berger reference entirety, Berger discloses a method for adding a joining node (*any node of Fig. 2 or 4 or 6*) to a wireless mesh network including networks nodes (SRs) (Fig. 2 or 4 or 6), the method (*see page 21, first paragraph and page 27, line 4 to page 29, line 9*) comprising:

designating at least one network node (*potential neighbor*) for initiating communication with the joining node (*see page 27, lines 10-12, Berger discloses the [unaffiliated] radio node shall listen for admission invitation signals form potential neighbors*);

at the at least one network node, to initiate communication with the joining node, scanning on a first sector with highest probability of locating the joining node (*see page 27, line 36 to page 28, line 1*);

subsequently scanning on sectors of lower probability of locating the joining node (*see page 28, lines 1-2*); and

receiving an answer at a network node in response to an invitation packet (*see page 27, lines 12-16, Berger discloses once the radio receives an invitation signal [from its potential neighbor], it will begin exchange status information with its first neighbor and through it, learn about the schedules of the immediate neighbor and thus begin to exchange status information with additional neighbors. Also see page 20, Table 1 for explanation of status information and page 21, lines 18-29 for explanation of Handshaking procedure*).

Regarding **claim 38**, in addition to features recited in base claim 37 (see rationales discussed above), Berger also discloses wherein subsequently scanning comprises: scanning on sectors immediately adjacent to the first sector; and subsequently scanning on sectors immediately adjacent to the sectors immediately adjacent to the fist sector (*see page 28, lines 1-2 and 7-9. The sequencing states (I0=>I1 and I1=>I0 and the antenna features of radio node described on page 9, last*

paragraph to page 10, first paragraph, implicitly and inherently read on the claimed limitations set forth).

Regarding **claim 39**, in addition to features recited in base claim 37 (see rationales discussed above), Berger also discloses wherein subsequently scanning comprises: skipping (missing) scanning on sectors immediately adjacent sectors already scanned; and subsequently scanning on sectors immediately adjacent to the skipped sectors (*see page 28, lines 1-2 and 7-9. The sequencing states (I0=>I1 and I1=>I0 and the antenna features of radio node described on page 9, last paragraph to page 10, first paragraph, implicitly and inherently read on the claimed limitations set forth*).

Regarding **claim 40**, in addition to features recited in base claim 37 (see rationales discussed above), Berger also discloses receiving (*consulting*) information (*configuration database*) about location of the joining node (*mesh radio affiliation*) (*see page 13, first paragraph, Berger discloses an optimized spectrum allocation could be downloaded from the NMS (Network Management System) based on network data flow information observed and studied by and external network. Moreover, on page 27, lines 7-9, Bergers discloses [upon power up] the radio node consults its configuration database to determine its mesh radio affiliation*);

based on the information about the location of the joining node, identifying the first sector with highest probability of locating the joining node (*see page 27, lines 10-12, Berger discloses the [unaffiliated] radio node shall listen for admission invitation signals form potential neighbors based on the configuration database (see page 27,*

lines 5-20. Moreover, the radio node listens for an invitation signal in a spatial azimuth at a given frequency for a sufficient length of time. Having not received an invitation signal, it has to scan to the next frequency and azimuth (see page 27, last paragraph to page 28, line 2).

Regarding **claim 41**, in addition to features recited in base claim 37 (see rationales discussed above), Berger also discloses receiving (*consulting*) information (*configuration database*) about location of the joining node (*mesh radio affiliation*) (*see page 13, first paragraph, Berger discloses an optimized spectrum allocation could be downloaded from the NMS (Network Management System) based on network data flow information observed and studied by and external network. Moreover, on page 27, lines 7-9, Bergers discloses [upon power up] the radio node consults its configuration database to determine its mesh radio affiliation*);

based on the information about the location of the joining node, identifying the first sector with highest probability of locating the joining node (*see page 27, lines 10-12, Berger discloses the [unaffiliated] radio node shall listen for admission invitation signals form potential neighbors based on the configuration database (see page 27, lines 5-20. Moreover, the radio node listens for an invitation signal in a spatial azimuth at a given frequency for a sufficient length of time. Having not received an invitation signal, it has to scan to the next frequency and azimuth (see page 27, last paragraph to page 28, line 2); and assigning each identified network node to transmit in the direction of the location of the joining node (see page 28, lines 30-35, Berger discloses the radio*

node [after successful completion of first exchange] schedule subsequent exchanges with other radio nodes in the neighborhood).

Regarding **claim 42**, in addition to features recited in base claim 37 (see rationales discussed above), Berger also discloses transmitting an invitation transmission from the at least one network node (*see page 21, lines 6-10*); and synchronizing (*scheduling handshake*) at least one of time, direction and frequency of the invitation transmission by the at least one network node to avoid interference at the joining node (*see page 18, lines 13-16 or page 21, lines 10-15*).

Regarding **claim 43**, in accordance with the Berger reference entirety, Berger discloses a method for adding one or more joining nodes (*any node of Fig. 2 or 4 or 6*) to a wireless mesh network, the method (*see page 21, first paragraph and page 27, line 4 to page 29, line 9*) comprising:

scheduling transmission of data packets by inviting network nodes (*potential neighbors*) on defined frequency channels and at defined directions to create spectral activity for detection of the spectral activity by the one or more joining nodes (*unaffiliated radio nodes*) (*see page 18, lines 13-16, Berger discloses the scheduled transmission and page 27, lines 10-12, Berger discloses radio node shall listen for admission invitation signals from potential neighbor*s); and

at a joining node of the one or more joining nodes, scanning the defined frequency channel and at different spatial directions to identify radio frequency activity of the inviting network nodes (*potential neighbors*) at the defined frequency channels (*see page 27, last paragraph to page 28, line 2, Berger discloses the [unaffiliated] radio*

node listens for an invitation signal in a spatial azimuth at a give frequency for a sufficient length of time), identifying spatial directions (*next listening frequency and spatial azimuth*) toward the inviting network nodes (*potential neighbors*) (*see page 28, lines 3-12*), and tuning (*housekeeping functions*) to a defined frequency channel in the identified spatial direction to receive an invitation packet transmitted by the inviting network nodes between the data packets (*see page 27, lines 30-35 and Fig. 7, states I0=>I2*).

Regarding **claim 44**, in addition to features recited in base claim 43 (see rationales discussed above), Berger also discloses wherein transmission of data packets (*see page 22, Table 3*) comprises: transmitting a radio frequency activity burst of information at a defined frequency channel and in one or more defined spatial directions (*see page 21, line 30 to page 23, line 6*).

Regarding **claim 45**, in addition to features recited in base claim 43 (see rationales discussed above), Berger also discloses wherein the data packets comprise short burst of data, have a duration shorter than duration of the invitation packets and are transmitted more frequently than the invitation packets (*see page 21, lines 18-34 and table 3 on page 22 for the size of handshaking packets and data packets*).

Response to Arguments

4. Applicant's arguments filed 09/16/03 have been fully considered but they are not persuasive. Applicants' arguments will be addressed hereinbelow in the order in which they appear in the response filed 09/16/2003.

In the Remarks of the outstanding response on page 8, second and third paragraphs, pertaining the rejection of claims 1 and 27, Applicants argue the passage cited in the Office Action dated 06/16/03 "does not teach active network nodes transmitting organized invitation data packets on defined sectors, frequencies and timing, based on their relative location and possible connectivity to a joining node deduced from sub-sectors already used for existing internal network communication".

In response Examiner respectfully disagrees because Applicants argue based on limitation not support by the original specification (see rationales pertaining the 112, first paragraph rejection discussed above).

Also on page 8, third paragraph continues to page 9, second paragraph of the Remarks, Applicants assert "*Similarly, the cited prior art fails to teach or suggest ... to a joining node*".

In response Examiner respectfully disagrees and asserts the passage bridging pages 27 and 28 of Berger discloses the claimed limitations of claim 37 in the present condition because "scanning first sector with highest probability of locating the joining node" is corresponding to "listening for an invitation signal in a spatial azimuth at a given frequency" and "scanning on sectors of lower probability of location the joining node" is corresponding to "scan to the next frequency and azimuth". Moreover, there is no telling in claim 37 who or what is doing the scanning. Thus, contradistinction to the Applicants' assertion, a careful review of claim 37 Examiner finds no such language of "*claim 37 requires at least one network node that scans, on a first sector with highest probability of locating a joining node, and subsequently scans, on sectors of lower*

probability of locating a joining node". Perhaps applicant refers to certain features that are disclosed in the present application but not recited in the rejected claims in making the contention that the Berger reference fails to show certain feature of applicant's invention. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).*

Examiner believes an earnest attempt has been made in addressing all of the Applicants' arguments. Due to the arguments are not persuasive, the rejection from the last Office Action is maintained.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Frank Duong whose telephone number is (703) 308-5428. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Seema S. Rao 12/13/03
SEEMA S. RAO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Frank Duong
December 13, 2003

Seema S. Rao
Supervisor Patent Examiner
Art Unit 2666